

KALKA PUBLIC SCHOOL

SUMMER HOLIDAY HOMEWORK - 2020-21

CLASS - XII (SCIENCE)

ENGLISH:

1. ENGLISH PROJECT

'Supervirus epidemic making human values prolific.' Instructions for English project:

- a) Students will prepare the project digitally – can make use of videos, interviews, clippings, presentations – minimum 15 slides.
- b) Try to be original and creative.
- c) Preserve the hardcopy for submission later.
- d) Clearly mention your Name, Class, Section, School, Subject, Topic name.

2. Draft 2 posters on the following topics:

- a) Covid-19 frontline fighters (in praise of doctors, nurses, police forces & sanitation workers)
- b) Be sensitive (migrant labourers, domestic helps, daily wage earners etc.)

3. Choose a suitable passage for note-making. Paste the passage in your notebook. Make notes on it adhering to the format taught in class. Use recognisable abbreviations & follow up with a key. Write a summary based on the notes in not more than 100 words.

PHYSICS:

1. Download physics holiday homework and project work from the link given below

https://drive.google.com/file/d/197dr5pNfWJqoTgTpmdpnk9zj_uM53xR/view?usp=gmail

CHEMISTRY:

1. Prepare one investigatory project (5 marks)

The project report to be written as follows: · Title Page – This is the first page carry the following information

(i) Title / Aim of the project

(ii) Name of the student with class and section · Table of contents – This page records the content of the project report preferably with corresponding page numbers. · Introduction and review – This provides a brief history of the project including chronological order of previous work done in this direction. ·

Experimental – This section should include the following information:

(i) Apparatus /equipment

(ii) Procedure /experimental methodology

(iii) Data / observation (with proper units of all the quantities

(iv) Calculations (use the correct formulae for the calculations

(v) Graphs / diagrams / charts

(vi) Result and conclusion ·

(vii) Bibliography – On this page a list of books, periodicals, review article, research work (if any) related to the present work is to be reported.

2. Learn the conceptual questions of the chapters taught in the class.

3. Learn the uploaded assignment ON WHATS APP GROUP

MATHEMATICS:

Q.1 If $(\tan^{-1} x)^2 + (\cot^{-1} x)^2 = \frac{5\pi^2}{8}$, find x .

Q.2 Solve: $\tan^{-1} x + 2 \cot^{-1} x = \frac{2\pi}{3}$

Q.3 Solve: $5 \tan^{-1} x + 3 \cot^{-1} x = 2\pi$

Q.4 If $a > b > c > 0$, prove that

$$\cot^{-1} \left(\frac{ab + 1}{a - b} \right) + \cot^{-1} \left(\frac{bc + 1}{b - c} \right) + \cot^{-1} \left(\frac{ac + 1}{c - a} \right) = \pi$$

Q.5 Solve the equation: $\tan^{-1} \sqrt{x^2 + x} + \sin^{-1} \sqrt{x^2 + x + 1} = \frac{\pi}{2}$

Q.6 Solve: $\sin^{-1} \frac{3x}{5} + \sin^{-1} \frac{4x}{5} = \sin^{-1} x$

Q.7 Solve: $\sin^{-1} 6x + \sin^{-1} 6\sqrt{3}x = -\frac{\pi}{2}$

Q.8 Solve: $\sin^{-1} x + \sin^{-1} 2x = \frac{\pi}{3}$

Q.9 Solve: $\cos^{-1} x + \sin^{-1} \frac{x}{2} - \frac{\pi}{6} = 0$

Q.10 If $\cos^{-1} \frac{x}{a} + \cos^{-1} \frac{y}{b} = \alpha$, prove that $\frac{x^2}{a^2} - \frac{2xy}{ab} \cos \alpha + \frac{y^2}{b^2} = \sin \alpha$

Q.11 Prove that
$$\begin{vmatrix} 1+a & 1 & 1 \\ 1 & 1+b & 1 \\ 1 & 1 & 1+c \end{vmatrix} = abc \left(1 + \frac{1}{a} + \frac{1}{b} + \frac{1}{c}\right)$$

$$= abc + bc + ac + ab$$

Q.12 Prove:
$$\begin{vmatrix} (b+c)^2 & a^2 & a^2 \\ b^2 & (c+a)^2 & b^2 \\ c^2 & c^2 & (a+b)^2 \end{vmatrix} = 2abc(a+b+c)^3$$

Q.13 Show that:
$$\begin{vmatrix} (b+c)^2 & ba & ac \\ ab & (c+a)^2 & bc \\ ac & bc & (a+b)^2 \end{vmatrix} = 2abc(a+b+c)^3$$

Q.14 Show that:
$$\begin{vmatrix} b^2+c^2 & ab & ac \\ ba & a^2+c^2 & bc \\ ca & bc & a^2+b^2 \end{vmatrix} = 4a^2b^2c^2$$

Q.15 Prove that:
$$\begin{vmatrix} a & b & ax+by \\ b & c & bx+cy \\ ax+by & bx+cy & 0 \end{vmatrix}$$

$$= (b^2 - ac)(ax^2 + 2bxy + cy^2)$$

Q.16 If a, b and c are all positive and are p^{th}, q^{th}, r^{th} terms of a G.P., then show that:

$$\Delta = \begin{vmatrix} \log a & p & 1 \\ \log b & q & 1 \\ \log c & r & 1 \end{vmatrix} = 0$$

Q.17 Differentiate:

$$\tan^{-1} \left(\frac{a \cos x - b \sin x}{b \cos x + a \sin x} \right), \frac{-\pi}{2} < x < \frac{\pi}{2}$$

Q.18 Differentiate: $y = \tan^{-1} \left\{ \frac{\sqrt{1+x^2} + \sqrt{1-x^2}}{\sqrt{1+x^2} - \sqrt{1-x^2}} \right\}$

Q.19 $\frac{dy}{dx} = ?$

$$y = \sin^{-1} \left\{ \frac{x + \sqrt{1-x^2}}{\sqrt{2}} \right\}$$

Q.20 If $y = \cos^{-1} \left\{ \frac{2x-3\sqrt{1-x^2}}{\sqrt{13}} \right\}$, find $\frac{dy}{dx}$

Q.21 If $\sqrt{1-x^6} + \sqrt{1-y^6} = a(x^3 - y^3)$

Prove that: $\frac{dy}{dx} = \frac{x^2}{y^2} \sqrt{\frac{1-y^6}{1-x^6}}$

Q.22 If $y\sqrt{1-x^2} + x\sqrt{1-y^2} = 1$

Prove that: $\frac{dy}{dx} = \sqrt{\frac{1-y^2}{1-x^2}}$

Q.23 If $\sqrt{1-x^2} + \sqrt{1-y^2} = a(x-y)$

Prove that: $\frac{dy}{dx} = \sqrt{\frac{1-y^2}{1-x^2}}$

Q.24 If $y = x \sin(a+y)$

Prove that: $\frac{dy}{dx} = \frac{\sin^2(a+y)}{\sin(a+y) - y \cos(a+y)}$

Q.25 If $e^x + e^y = e^{x+y}$

Prove that: $\frac{dy}{dx} = \frac{-e^x(e^y-1)}{e^y(e^x-1)}$

Q.26 Differentiate x^{x^x}

Q.27 If $x^m y^n = (x+y)^{m+n}$, prove $\frac{dy}{dx} = \frac{y}{x}$

Q.28 If $e^x + e^y = e^{x+y}$, prove $\frac{dy}{dx} + e^{y-x} = 0$

Q.29 If $x^m y^n = 1$, prove that $\frac{dy}{dx} = \frac{-my}{mx}$

Q.30 If $y = x \sin(a+y)$, prove that $\frac{dy}{dx} = \frac{\sin^2(a+y)}{\sin(a+y) - y \cos(a+y)}$

Q.31 If $y = x^{x^{\dots^{\infty}}}$, find $\frac{dy}{dx}$.

Q.32 If $y = a^{x^{a^{x^{\dots^{\infty}}}}}$ prove that $\frac{dy}{dx} = \frac{y^2 \log y}{x(1-y \log x \log y)}$

Q.33 If $x = a \sec^3 \theta$, $y = a \tan^3 \theta$, find $\frac{dy}{dx}$ at $\theta = \frac{\pi}{3}$

Q.34 Differentiate $\tan^{-1}\left(\frac{\sqrt{1-x^2}}{x}\right)$ with respect to $\cos^{-1}(2x\sqrt{1-x^2})$

Q.35 If $x = a(\cos 2t + 2t \sin 2t)$, $y = a(\sin 2t - 2t \tan 2t)$ then find $\frac{d^2y}{dx^2}$

Q.36 If $x = 3 \cot t - 2 \cos^3 t$, $y = 3 \sin t - 2 \sin^3 t$, find $\frac{d^2y}{dx^2}$

Q.37 If $y = x + e^x$, find $\frac{d^2y}{dx^2}$

Q.38 A man 2m high, walks at uniform speed of 6m per min away from a lamp post, 5m high. Find the rate at which the length of his shadow increases.

Q.39 Water is dripping out from a conical funnel of semi-vertical angle $\frac{\pi}{4}$ at the uniform rate of $2\text{cm}^2/\text{s}$ in its surface area through a tiny hole at the vertex in the bottom. When the slant height of the water is 4cm, find the rate of decrease of the slant height of water.

Q.40 If $F(x) = \begin{bmatrix} \cos x & \sin x \\ -\sin x & \cos x \end{bmatrix}$, then find $F(x)F(y)$

Q.41 If $A = \begin{bmatrix} 0 & 0 & 1 \\ 0 & 1 & 0 \\ 1 & 0 & 0 \end{bmatrix}$, then find A^6

Q.42 If $A = [a_{ij}]$ is a 2×3 matrix such that $a_{ij} = \frac{(-i+2j)^2}{5}$ then find a_{23}

Q.43 If $A = \text{diag}(3, -1)$ then find matrix A .

Q.44 If A is square matrix such that $A^2 = A$, then find $(1 + A)^2 - 3A$

Q.45 If $y = Ae^{5x} + Be^{-5x}$ then $\frac{d^2y}{dx^2}$ is equal to

Q.46 If $y = a \sin^3 t$, $x = a \cos^3 t$ then $\frac{dy}{dx} = 1$, at $t = \frac{3\pi}{4}$

Q.47 The side of an equilateral triangle is increasing at the rate of 2cm/s. The rate at which area increases when the side is 10cm is:

Q.48 The equation of the normal at the curve, $y = \sin x$ at $(0,0)$ is:

Q.49 The total revenue in Rs. received from the sale of x units of an article is given by:

$$R(x) = 3x^2 + 36x + 5$$

The marginal revenue when $x = 15$ is (in Rs.)

Q.50 Total no. of possible matrices of order 2×3 with entry 1 or 0 is:

BIOLOGY:

1 Students are required to complete their project work as per C.B.S.E. guidelines as it is an important part of the board evaluation .

2 You are also to revise the whole syllabus which has been completed till date

COMPUTER SCIENCE:

Q1: Submit the synopsis of your Project on any topic for the board practical examination. Make its layout and use DFD's and FLOW charts.

Guidelines for Synopsis:

- a) Programming language:- Python and MySql
- b) Front end is Python and Back end is MYSql.
- c) Project Report must have a Title page, Acknowledgement page, Index page and Bibliography page.
- d) Project Report should be prepared in any Word processor (MS Word) software.

Project Report must have Header and Footer. Name of the Project topic should reflect in Header and Page number should be in footer.

Q2. Develop a research project or an innovation project designed for use of Information Technology to deal with COVID19 CORONA VIRUS.

(Note: Only for those who have been assigned the COVID project for .Comp.Sc.)

TOPIC: How digital investment can help the recovery of Covid19 CORONA VIRUS.

Guidelines for a research project or an innovation project:

- 1) The duration of the video is 3 to 4 minutes.
- 2) **Technology/Software/App use:** Animated videos using any animation software/app
- 3) All entries should be submitted on an individual basis.
- 4) No shared work is allowed.

Q3. With reference to the following relations (tables) EMPLOYEE and JOB complete all the queries in your practical file.

Create following tables EMPLOYEE and JOB such that Empno and Sno are not null and unique, date of birth is after '12-Jan-1960' , name is never blank, Area and Native place is valid, hobby, dept is not empty, salary is between 4000 and 10000.

Table: EMPLOYEE

Empno	Name	Dobirth	Native_place	Hobby
123	AMIT	23-Jan-65	Delhi	Music
127	MANOJ	12-Dec-76	Mumbai	Writing
124	ABHAI	11-Aug-75	Allahabad	Music
125	VINOD	4-Apr-77	Delhi	Sports
128	ABHAY	10-Mar-74	Mumbai	Gardening
129	RAMESH	28-Oct-81	Pune	Sports

Table: JOB

Sno	Area	App_date	Salary	Retd_date	Dept
123	Agra	25-Jan-06	5000	25-Jan-26	Marketing
127	Mathura	22-Dec-06	6000	22-Dec-26	Finance
124	Agra	19-Aug-07	5500	19-Aug-27	Marketing
125	Delhi	14-Apr-04	8500	14-Apr-18	Sales
128	Pune	3/13/2008	7500	13-mar-	Sales

1. Show empno, name and salary of those who have Sports as hobby.
2. Show name of the eldest employee.
3. Show number of employee area wise.
4. Show youngest employees from each Native place.
5. Show Sno, name, hobby and salary in descending order of salary.
6. Show the hobbies of those whose name pronounces as 'Abhay'.
7. Show the appointment date and native place of those whose name starts with 'A' or ends in 'd'.
8. Show the salary expense with suitable column heading of those who shall retire after 20-jan-2006.
9. Show an additional burden on the company in case the salary of employees having a hobby as sports, is increased by 10%.

10. Show the hobby of which there are 2 or more employees.
11. Show how many employee shall retire today if maximum length of service is 20 years.
12. Show those employee name and date of birth who have served more than 17 years as on date.
13. Show names of those who earn more than all of the employees of Sales dept.
14. Show names of those who earn more than at least one of the employees of Marketing dept.
15. Increase salary of the employees by 5 % of their present salary with hobby as Music or they have completed atleast 3 years of service.
16. Show the maximum salary and the hobby of employee.
17. Count the number of employees in each department.
18. To display the maximum, minimum, sum and average salary of each department.
19. To display ename in lower case and job in upper case.
20. To display employees name, salary and Area of all the employees working in Agra
21. Add a new tuple(row) in the table essentially with hobby as Music.
22. Insert a new column email in job table
23. Create a table with values of columns empno, name, and hobby.
24. Erase the records of employee from job table whose hobby is not Sports.
25. Remove the table EMPLOYEE.

ECONOMICS:

Make a soft CBSE ECONOMICS project on ms-word worth about 15- 20 pages on any one of the following topics with the following guidelines:

TOPICS

1. Unemployment in India
2. Rain water harvesting

3. Sustainable development
4. Exchange rate determination
5. Foreign direct investment –pre and post COVID
6. Education and health infrastructure in India

GUIDELINES

- Follow this sequence of pages
Title page- acknowledgement- certificate- index- objective of the project-----content worth 15-20 pages----- case study – conclusion- bibliography
- You are required to use newspaper cuttings, articles, pictures from the internet,
- Use data from government sites
- Avoid using Wikipedia

Copy and paste the links of the pages that you have used to gather information in the bibliography

This project will be evaluated as your internal assessment. It's worth a total of 20 marks inclusive of the viva.

SOCIOLOGY:

NOTE :DO THE HOME WORK IN YOUR NOTE BOOKS ALL QUESTIONS ARE MANDATORY

Q1. DO LEARNING CHECKS OF TOPIC COVERED BEFORE HOLIDAYS

Q2. PROJECT WORK TO BE DONE IN MS WORD FILE IT IS AN ART INTEGRATED PROJECT

Q3. SELECT ANY ONE PROJECT FOR CBSE BOARD PRACTICAL EVALUATION

Q1. Do 1 mark learning checks of chapters covered chapter 2 ,3,4 of Indian Society and CHAPTER 1,2, 3, of Social Change and Development in India.

Q2.1 Indian traditions offer various styles of narratives. Use any one form to depict a story on honesty. The selection of stories could be from different faiths/religions. The following can be used to highlight your presentation: painting, props, sūtradhāra, music, costumes or any other visuals.

OR

2. Prepare a wall magazine depicting at least four virtues from among the following: selfless service, non-enmity, forgiveness, truthfulness, humility, simplicity, righteousness, austerity, restraint, non-covetousness, purity, contentment, compassion. 3. Collect stories from various faiths

Q3 PROJECTS CBSE BOARD TOPICS: NOTE EACH ONE OF YOU WILL SELECT ONE TOPIC AND IT SHOULD NOT BE REPEATED BY OTHER SO SELECT TOPIC AND WITH YOUR NAME SEND IT ON MY PERSONAL WINDOW

1:-On the sub-culture of LGBTQ community

- 2:- On the life of disabled people in India
- 3:- On new trends in family and marriage systems in India
- 4:- Caste system in Islam/Muslims
- 5:- On how cults are rising and on how the religion is using science and technology for revivalism
- 6:- Consumerism and throw away culture
- 7:- On Social construction of reality i.e the role of common sense. (if given a chance i would do on it)
- 8:- social media and cyber- crime
- 9:- On the life of Street-vendors,,,, las Aspirants,,,, etc
- 10:- Role of cultural myths in creating solidarity in India i.e unity in diversity
- 11:- New trends in social movements in India
- 12:- The impact of schemes like Mgnrega, Demonetization etc on rural poor and small farmers.
- 13:- Environmentalism and eco-feminism in India
- 14:- Mob lynching love jihad crowd behaviour
- 15:-The problems or life of bonded labour or domestic helps in India sub-culture of slum dwellers etc
- 16:-Students academics, impact of technology on the life of students in school or colleges
- 17:- life of a tribal community
- 18:- Change in the status of working or non working women.
- 19:- Girls in slums on their health or education and so on.
- 20:- How does globalization affect the Indian culture
- 21:-Are freelancers and IT companies working remotely with the US and Europe forming a new caste in India?
- 22:-The origins and effects of a caste system in India.
- 23:-Immigration from India (how many people actually leave the country, does the state see it as a problem or no, why people choose to leave, what challenges people who want to immigrate from India meet)

24:-The peculiarities of the Indian diaspora.
25:-Animal Welfare
26:-Impact of globalization on teenagers
27:-Impact on TELEVISION on the peer group.
28:-Farmer's suicide ugly side of commercialization
29:-Social Media and youth
30:-Twitter vs Facebook vs Instagram
31:-Poverty and Crime
32:-Transport in cities METRO.
33:-Domestic Violence
34:-Acid Attack
35:-Sports and Media
36:-Consumerism and Modernization
37:-Youth and Politics
38:-Sports and Career
39:-Mobile phones bane or boon
40:-BLOG a part of social media
41:- Transgender
42:-Godmen in India
43:-Gender Discrimination
44:-Role of gender in social upliftment
45:-Caste and Politics
46:-Fitness Industry and its impact on youth
47:-Self Harm
48:-Marriage as a social institution
49:-Impact of Liberalization on rural poor
50:-Inter caste marriage
51:-Advertisement and Consumer behavior
52:-Problems of social order in urban areas
53:-Sociology of food
54:-Social media and celebrity
55:-Religion and Youth
56:-Caste and its invisibility
57:-Overpopulation
58:-Changing food habits
59:-Drug and substance abuse
60:-EMO Culture

- 61:-Surrogacy
- 62:-Teenage Depression
- 63:-Honor Killing
- 64:-Use of Public Open Spaces
- 65:-Juvenile Delinquency
- 66:- Bullying in Social Media
- 67:-Portrayal of women in popular media
- 68:-Plight of differently abled in India
- 69:-HIP-HOP CULTURE IN 1980s
- 70:-Patriarchy and women's rights
- 71:- Role of frontline lifeline fighters during pandemic
- 72:- Comparative Study of SPANISH FLU VS COVID 19c
- 73:-Change in international CUSTOMS AND Etiquettes during and after pandemic
- 74:-Outbreaks and its impact on changing social trends.

POINTS TO REMEMBER:-

- YOUR PROJECT SHOULD HAVE
- COVER PAGE
- CERTIFICATE
- ACKNOWLEDGEMENT
- WELL FRAMED RESEARCH QUESTION
- STATEMENT OF PURPOSE OR RATIONALE (WELL WRITTEN)
- RESEARCH SITE
- METHODOLOGY (SURVEY ,INTERVIEW ITS ADVANTAGES AND DISADVANTAGES)
- EXPECTED OUTCOMES
- LIMITATIONS
- QUESTIONNAIRE (20 QUESTIONS FOR SURVEY AND 15 QUESTIONS FOR INTERVIEW SCHEDULE)
- 2 CASE STUDIES
- CONTENT
- DATA ANALYSIS OF (50 SAMPLES OF SURVEY TO BE FILLED BY PEOPLE IN YOUR LOCATY)
- NEWSPAPER OR MAGAZINE CLIPPINGS
- CONCLUSION
- BOBLIOGRAPHY

NOTE:- THE ENTIRE PROJECT SHOULD BE HAND WRITTEN

(MUSIC)

Q. 1 Brief study :

- Alankar
- Varna
- Kan
- Meend
- Khatka
- Murki
- Gamak

Q. 2 Brief study :

- Sadra
- Dadra
- Murchhana
- Alap
- Tan
- Gram

Q. 3 Study the following :

- Clarification of Ragas
Ancient, Medieval and
Modern.

3.1 Historical development of time theory of Ragas.

3.2 Detail study :

1. Sangeet Ratnakar
2. Sangeet Parijaat

3.3 Life sketch and
contribution:

1. Abdul karim Khan
2. Faiyaz Khan
3. Bade Ghulam Ali Khan
4. Krishna Rao
5. Shankar Pandit

Q. 4 Description of prescribed Taalas along with Taala notations
with :

1. Thah

2. Dugam
3. Chaugun

- Jhaptaal
- Rupak
- Tilwada
- Dhamar

4.1 Study of various parts and tuning of Tanpura

Q. 5 Writing the notation of composition of prescribed :

- Bageshri
- Malkauns

VOCAL PRACTICE

1. Vilambhit khayal with simple elaboration and few tanas in any two of the prescribed Raagas.
2. Ability to recognize the Raagas from the phrases of swara.